

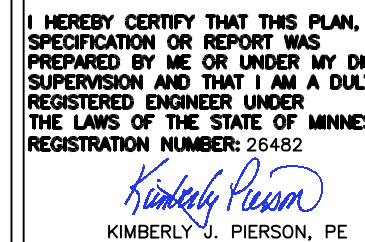
GENERAL
NOTES:

DUNHAM 

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50 South Sixth Street / Suite 1100
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mechanical + electrical consulting engineering



Dwg 4 of 9

 Department of
Veterans Affairs

1 BOILER FEEDWATER FLOW DIAGRAM – NEW WORK
NONE

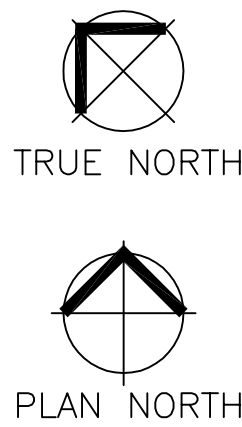
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REGISTRATION NUMBER: 25482
KIMBERLY J. PIERSON
KIMBERLY J. PIERSON, PE

Drawing Scale
AS NOTED

Plot Scale
12" = 1'-0"

Drawing Title
BOILER FEEDWATER FLOW DIAGRAM - NEW WORK

Approved: Division Chief

Approved: Service Director

Project Title
ENERGY CENTER EQUIPMENT REPLACEMENT PROGRAM

Location
V.A. MEDICAL CENTER
ONE VETERANS DRIVE
MINNEAPOLIS, MN 55417

Date
04/07/2016

Checked
TL

Drawn
SC

Project No.
VA Proj # 616-14-353
Dunham # 416950-007

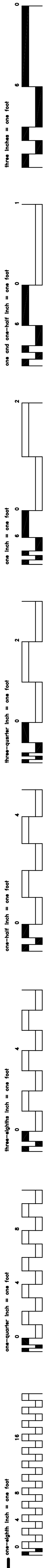
Building Number
69

DRAWING NO.
1326-M202

Dwg. 5 of 9

Office of Facilities Management

Department of Veterans Affairs



ELECTRICAL SYMBOLS - PHASING		ELECTRICAL SYMBOLS - POWER PLAN		ELECTRICAL SYMBOLS - LIGHTING PLAN		ELECTRICAL SHEET INDEX	
<div><div><div></div><div></div></div><div>LINE TYPE INDICATES EXISTING DEVICE TO REMAIN</div></div> <div><div><div></div><div></div></div><div>LINE TYPE INDICATES EXISTING DEVICE TO BE DEMOLISHED</div></div> <div><div><div></div><div></div></div><div>LINE TYPE INDICATES NEW DEVICE</div></div> <div><div><div><div><div></div><div></div></div><div>RL = REMOVE AND RELOCATE</div></div><div><div><div></div><div></div></div><div>NL = NEW LOCATION OF RELOCATED DEVICE</div></div></div></div>		<div><div><div><div><div></div><div></div></div><div>CONDUIT TERMINATED 6" [152mm] AFF IN STANDARD BOX FOR EXTENSION TO EQUIPMENT AS DIRECTED.</div></div><div><div><div><div></div><div></div></div><div>CONDUIT TERMINATED W/COUPLING (FLUSH W/FINISHED FLOOR) FOR EXTENSION TO EQUIPMENT AS DIRECTED.</div></div><div><div><div><div><div>\$2</div><div></div></div><div>SWITCH</div><div>F = FUSED SWITCH</div><div>L = LOCK</div><div>M = MANUAL MOTOR STARTING</div><div>MP= MOTOR SNAP WITH PILOT LIGHT</div></div><div><div><div>K = KEY OPERATED</div><div>LM= LOW VOLTAGE MASTER</div><div>MC= MOMENTARY CONTACT</div><div>P = WITH PILOT LIGHT</div></div></div><div><div><div><div></div><div></div></div><div>(THERMAL TYPE)</div></div><div><div><div>PB= PUSH BUTTON STATION</div><div>WP= WEATHER PROOF</div></div><div><div>RC= REMOTE CONTROL</div><div>X = EXPLOSION PROOF</div></div></div><div><div><div></div><div></div></div><div>MOTOR CONNECTION</div></div></div></div></div></div></div></div>		<div><div><div><div><div>\$2</div><div></div></div><div>SWITCH</div><div>BLANK = SINGLE POLE</div><div>3 = THREE-WAY</div><div>D = DIMMER</div><div>L = LOCK</div><div>##-###(X)= LOW VOLTAGE SWITCH (X = # OF BUTTONS)</div><div>PB= PUSH BUTTON STATION</div><div>T = TIMER OPERATED</div><div>X = EXPLOSION PROOF</div></div><div><div><div>2 = DOUBLE POLE</div><div>4 = FOUR-WAY</div><div>K = KEY OPERATED</div><div>P = WITH PILOT LIGHT</div><div>WP= WEATHER PROOF</div><div>Mo= OCCUPANCY SENSOR</div></div></div><div><div><div><div><div></div><div></div></div><div>CEILING MOUNTED OCCUPANCY SENSOR</div></div><div><div><div></div><div></div></div><div>LIGHT FIXTURE CEILING MOUNTED</div></div><div><div><div><div><div></div><div></div></div><div>LIGHT FIXTURE ID - REFER TO LT FIXT SCHEDULE (FIXT SCHEDULE OVERRIDES SYMBOL ABBREVIATION)</div></div><div>A - INDICATES LIGHT FIXTURE TYPE (X = EXISTING)</div><div># - INDICATES CIRCUIT NUMBER</div><div>b - INDICATES SWITCHING</div></div></div><div><div><div><div><div></div><div></div></div><div>LIGHT FIXTURE CIRCUIT TYPE</div><div>- NO HATCH INDICATES NORMAL CIRCUIT</div><div>- ANGLED HATCH INDICATES CRITICAL CIRCUIT</div><div>- SOLID HATCH INDICATES LIFE SAFETY CIRCUIT</div></div></div><div><div><div><div><div></div><div></div></div><div>TROFFER TYPE LIGHT FIXTURE, SIZE AS INDICATED</div></div><div>- CEILING MOUNT</div></div><div><div><div><div><div></div><div></div></div><div>LIGHT TRACK WITH HEADS AS SHOWN</div></div><div><div><div></div><div></div></div><div>LIGHT FIXTURE, STRIP/INDUSTRIAL FLUORESCENT; LETTER INDICATES TYPE.</div></div><div><div><div><div><div></div><div></div></div><div>LIGHT FIXTURE, WALL MOUNTED</div></div></div><div><div><div></div><div></div></div><div>LIGHTING, ONE HEAD EMERGENCY BATTERY POWER</div></div><div><div><div></div><div></div></div><div>LIGHTING, TWO HEAD EMERGENCY BATTERY POWER</div></div><div><div><div></div><div></div></div><div>LIGHTING, THREE HEAD EMERGENCY BATTERY POWER</div></div><div><div><div></div><div></div></div><div>LIGHTING, EXTERIOR BUILDING</div></div><div><div><div><div><div></div><div></div></div><div>EXIT SIGN, WALL MOUNTED WITH DIRECTIONAL ARROWS AND FACES AS SHOWN</div></div><div><div><div></div><div></div></div><div>EXIT SIGN, CEILING MOUNTED WITH DIRECTIONAL ARROWS AND FACES AS SHOWN</div></div><div><div><div></div><div></div></div><div>LIGHT FIXTURE, DIRECTIONAL</div></div></div></div></div></div></div></div></div></div></div></div></div>			
ELECTRICAL SYMBOLS - POWER PLAN		COMMUNICATION SYMBOLS					
<div><div><div><div><div></div><div></div></div><div>JUNCTION BOX</div></div><div><div><div><div>C</div><div>C</div></div><div>LADDER CABLE TRAY</div></div><div><div><div><div></div><div></div></div><div>BRANCH CIRCUIT HOMERUN. LINES INDICATE NUMBER OF CIRCUITS, NEUTRAL, AND SWITCH LEG CONDUCTORS. ONE SEPARATE GREEN GROUNDING CONDUCTOR SHALL BE PROVIDED FOR EACH HOMERUN; NOT SHOWN</div></div></div><div><div><div><div>PB</div><div></div></div><div>PULL BOX</div></div><div><div><div><div>W</div><div>W</div></div><div>WIREWAY</div></div><div><div><div><div>RC</div><div></div></div><div>RIGID CONDUIT LINE = RC</div></div><div><div><div><div>DB</div><div></div></div><div>DIRECT BURIAL CABLE = DB</div></div><div><div><div><div>P</div><div></div></div><div>POWER DUCT = P</div></div><div><div><div><div>S</div><div></div></div><div>SUBSTATION</div></div><div><div><div><div>HVS</div><div></div></div><div>HI VOLTAGE SWITCH ON CONCRETE PAD</div></div><div><div><div><div>LVS</div><div></div></div><div>LOW VOLTAGE SWITCH ON CONCRETE PAD</div></div><div><div><div><div>P</div><div>T</div></div><div>DUAL POWER AND TELECOMMUNICATIONS MANHOLE</div></div></div><div><div><div><div>B</div><div>B</div></div><div>BUSWAY</div></div><div><div><div><div></div><div></div></div><div>FLOOR OUTLET, DATA COMMUNICATION</div></div><div><div><div><div></div><div></div></div><div>OUTLET, DATA COMMUNICATION</div></div><div><div><div><div></div><div></div></div><div>PUSH BUTTON</div></div><div><div><div><div></div><div></div></div><div>DISTRIBUTION PANEL</div></div><div><div><div><div></div><div></div></div><div>LIGHTING PANEL</div></div><div><div><div><div></div><div></div></div><div>PANELBOARD CABINET, FLUSH MOUNTED</div></div><div><div><div><div></div><div></div></div><div>PANELBOARD CABINET, SURFACE MOUNTED</div></div><div><div><div><div></div><div></div></div><div>RECEPTACLE, CLOCK HANGER</div></div><div><div><div><div></div><div></div></div><div>RECEPTACLE, DUPLEX - MOUNT 18" AFF, UNLESS NOTED OTHERWISE</div></div><div><div><div><div></div><div></div></div><div>RECEPTACLE, DUPLEX ON EMERGENCY POWER - MOUNT 18" AFF, UNLESS NOTED OTHERWISE</div></div><div><div><div><div></div><div></div></div><div>RECEPTACLE, DUPLEX WITH GROUND FAULT CIRCUIT INTERRUPTER - MOUNT 18" AFF, UNLESS NOTED OTHERWISE</div></div><div><div><div><div></div><div></div></div><div>RECEPTACLE, QUADRAPLEX - MOUNT 18" AFF, UNLESS NOTED OTHERWISE</div></div><div><div><div><div></div><div></div></div><div>RECEPTACLE, SINGLE - MOUNT 18" AFF, UNLESS NOTED OTHERWISE</div></div><div><div><div><div></div><div></div></div><div>RECEPTACLE, SINGLE WITH SWITCH - MOUNT 18" AFF, UNLESS NOTED OTHERWISE</div></div><div><div><div><div></div><div></div></div><div>RECEPTACLE, SPECIAL PURPOSE - MOUNT 18" AFF, UNLESS NOTED OTHERWISE</div></div><div><div><div><div>A = 120V, 20A, 1 PHASE, 2-POLE, 3W, NEMA 5-20R.</div><div>B = 208V, 20A, 1 PHASE, 2-POLE, 3W, NEMA 6-20R.</div><div>C = 120V, 30A, 1 PHASE, 2-POLE, 3W, NEMA 5-30R.</div><div>D = 208V, 30A, 1 PHASE, 2-POLE, 3W, NEMA 6-30R.</div><div>E = 208V, 60A, 1 PHASE, 3-POLE, 4W, NEMA 14-60R.</div><div>F = 208V, 30A, 3 PHASE, 3-POLE 4W, NEMA 15-30R.</div><div>G = 208V, 50A, 3 PHASE, 3 POLE, 4W, NEMA 15-30R.</div><div>H = 208V, 60A, 3 PHASE, 3 POLE, 4W, NEMA 15-60R.</div></div><div><div><div><div></div><div></div></div><div>RECEPTACLE, SWITCHED DUPLEX - MOUNT 18" AFF, UNLESS NOTED OTHERWISE</div></div><div><div><div><div></div><div></div></div><div>DROP CORD, SINGLE CONVENIENCE OUTLET, 3-WIRE, GROUNDING TYPE, 20A, W/#12 CONDUCTORS IN FLEXIBLE CORD (CENTER LINE OF OUTLET: 6'-6" [1981mm] AFF. MINIMUM).</div></div><div><div><div><div></div><div></div></div><div>ELECTRICAL STRIP MOLD (OUTLETS ON 2'-0" [610mm] CENTERS OR AS DESIGNATED ON DRAWINGS), MTD 3'-6" [1067mm] AFF OR AS INDICATED.</div></div><div><div><div><div></div><div></div></div><div>3-GANG COMPARTMENT BOX IN FLOOR FOR TELEPHONE, DATA & RECEPTACLE.</div></div><div><div><div><div></div><div></div></div><div>RELAY: LETTER INDICATES RELAY TYPE</div><div>50 = INSTANTANEOUS OVERCURRENT OR RATE-OF-RISE</div><div>51 = AC-TIME OVERCURRENT</div><div>67 = AC-DIRECTIONAL OVERCURRENT</div><div>86 = LOCK OUT</div></div><div><div><div><div></div><div></div></div><div>DISCONNECT SWITCH, FUSED</div></div><div><div><div><div></div><div></div></div><div>DISCONNECT SWITCH, UNFUSED</div></div><div><div><div><div></div><div></div></div><div>STARTER, COMBINATION WITH DISCONNECT SWITCH</div></div><div><div><div><div></div><div></div></div><div>STARTER OR MOTOR CONTROLLER</div></div><div><div><div><div></div><div></div></div><div>VARIABLE FREQUENCY DRIVE</div></div><div><div><div><div>VFD-***</div><div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div>							

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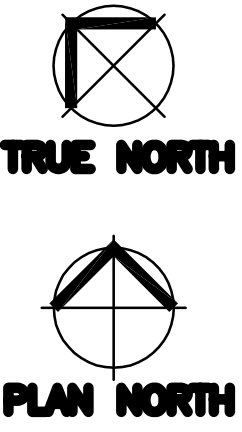
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CURTIS BARLAGE, PE

Drawing Scale
AS NOTED

Plot Scale
12" = 1'-0"

Drawing Title
ELECTRICAL TITLE SHEET

Approved: Division Chief

Approved: Service Director

Project Title
ENERGY CENTER
EQUIPMENT REPLACEMENT
PROGRAM

Location
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ONE VETERANS DRIVE
MINNEAPOLIS, MN 55417

Date
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Checked
JK

Drawn
CB

Project No.
VA Proj # 60-14-353
Dunham # 46950-007

Building Number
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DRAWING NO.
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Dwg. 7 of 9

Office of
Facilities
Management

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Veterans Affairs

